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ABSTRACT

A consensus has prevailed among educators that Americans of verying ethnic, social, cultural, and linguistic backgrounds who must communicate with each other in social, academic, and occupational situations might achieve a greater degree of rapport if the dialect of the English mutually spoken and the speech mannerisms used were standardized. Standard English was developed to set a norm for the general "language" characteristics. A command of Standard English implies a person's "linguistic competence." The National Speech Communication Learning System was established by the University of Hawaii to enable students with Pidgin speech to become more effective in Standard English. The strategy began with criterion reliability and validity and emerged into a six-system scheme of professor and student tutoring. Over 2,000 students participated in the project, and some modification of nonstandard speech behavior was achieved. (DS)

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Interpersonal Learning Systems for National Speech-Communication

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National Speech-Communication as a Behavior

National speech-communication occurs when persons with different local speech-communication characteristics must communicate in social, academic and vocational situations in which specific outcomes of their communications are usually required. National speech-communication differs from Standard English, a term more generally employed, in that Standard English refers to general language characteristics of a large population of communicators; national speech-communication refers to behavioral contingencies in the process of interaction between specific persons in specific types of situations. Standard English is considered to be the dialect many speakers command; to the extent that national speech-communication refers to dialects, it includes a large plurality of dialects that are more dependent upon characteristics of the communication situations than upon characteristics of the communicators. Moreover, a person's relative command of standard English is an assessment of his linquistic competence; a person's relative ability in national speech-communication is an assessment of his performance in various types of specific situations. Standard English refers to one's cognitive knowledge of rules of performance; national speech-communication refers to one's behaviors, regardless of the degree of his cognitive knowledge of any rules he may adhere to in his performance. And the assessment of degree of command of Standard English usually involves a paper-and pencil test of language in which the time allowed for each response is usually not

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controlled. Tests of competence in Standard English, therefore, tend to be better predictors of scribal (written) communication behaviors than of speech-communication behaviors.[1] When the time allowed for each response is more controlled, the assessment more accurately predicts speech-communication behaviors and less accurately predicts scribal communication behaviors.

Modification of National Speech-Communication Behaviors

Programs to teach Standard English, like programs to teach any language, have been developed for decades, but the history of their effectiveness in enabling persons to utilize what they have learned in real-time speech-communication situations is seldom assessed and, if assessed, the results are discouraging. Programs to modify speech-communication behaviors, on the other hand, have only very recently begun to be developed, and few reports of their effectiveness are available. The University of Hawaii and its Department of Speech-Communication have pioneered in the area of modifying speech-communication behaviors, and in 1965 a Speech-Communication Center (S-CC) was established to engage in research, researcher training and program development to enable students at all levels from kindergarten through graduate school to become more effective in national speech-communication. Several interim reports of the Center's progress in achieving that end have been published.[2] However, now that the Center system is operational and is being innovated elsewhere, this will constitute a final report--an intellectual history--of the development of the University of Hawaii's Speech-Communication Center System. Much of the decision-making resulted from countless hours of communication between L. S. Harms and the author, both of whom are skilled devil's advocates.

That dyad, sustained for four years is truly the author of the System. This report, therefore, represents the deliberations of that dyad and the consequences of each of its decisions:the editorial "we" as used herein is not a mere convention.

Project Goals

The first problem in developing the Center System was to identify the problem. Problems were viewed as residing in two areas: criterion reliability and criterion validity.

(1) Criterion Reliability

The criterion situation in which speech-communication would be assessed had been rather firmly established. One or more professors would interview students and, on the basis of their performances as interviewees, would select or exempt each student from training.

When three raters served together, and rated on a 1-7 scale, selection for training had been a sum of 10 or less. The scale extremes were defined as (1) very inadequate and (7) very adequate in "degree of command of a generally acceptable and intelligible form of spoken English." It was decided not to modify this criterion initially so that, when and if desired behavioral changes were induced, there would be no charge that the criterion had not been met. However, the reliability of the criterion situation did need to be assessed, and its validity needed to be questioned.

To check for reliability, various groups of three raters were employed. Each rater served on various occasions with different raters, so that the usual methods of assessing reliability, if employed, would

have to be limited to a single rating session. To avoid estimates based on such low N's, the ratings of each rater were correlated with the sum of those two raters' ratings that served with him at various times. As can be seen in Table I, 2 of the raters were found to be unreliable, and they were excluded from serving as raters subsequently.

Over the next three years various student research projects discovered most of the factors which attenuate these ratings. For several semesters one of the three raters sat in the interview room and played prerecorded questions to each interviewee while each of the other two raters observed from a different room through two-way mirrors and listened to the interview over a high-fidelity sound system, and this isolation permitted even more controlled investigation of reliability. It was found by Uyehara[3] that Caucasian raters who had lived in Hawaii for at least eight years did not differ significantly from raters who lived there for one year or less in rating intelligibility but the older residents rated the effectivensss of the less intelligible significantly lower. Yoshino[4] found that, of the 4 rater-ratee sex combinations, female raters rated males significantly lower than did male raters. Len[5] found that raters who sit in a highly isolated and darkened room rated significantly lower than do raters sitting vis-a-vis with ratees, and Marshall[6] found an ordinal position effect or fatigue factor in that the last ratee in a large group tends to be rated lower. Most of the obvious differences between raters (age, race, academic rank, and sex) did not yield significantly different ratings.

(3) Criterion Validity

In a study by Crane[7] two-minute audio samples of portions of the

Table I

Correlations of Raters' Ratings with the Sum of the Two Other Raters Who Rated Ss With Him

Rater	r	N
1	.826	14
2	.781	17
3	.737	25
4	.736	25
5	.722	17
6	.707	23
7	.695	31
8	.692	13
9	.673	30
10	.662	19
11	.653	38
12	.648	42
13	.633	39
14	.633	14
15	.605	26
16	.572	17
17	.510	21
18	.505	12
19	.495	41
20	.485	23
21	.485	17
22	.447	21
23	.408	13
24*	.279	29
25*	.242	12
All 25	.562	625

*excluded from rating subsequently

interviews of 49 students were selected to represent a normal distribution of ratings, and these were submitted to four other groups of six raters: professors in areas related to speech-communication, high school teachers of speech, high-level educational administrators and corporation executives engaged in personnel employment and training. As shown in Table II, the agreement among the groups was generally high, and with the Evaluation Board criterion were .63 to .81. The reliability of the four groups, using the severe Ebel test[8] of homogeneity among raters to heterogeneity among ratees, were all satisfactory. Although correlative validitiy is but one type of validity,[9] more than two years were to pass before it was discovered from the outcomes of the Center System that the speech-communication behaviors of persons as interviewees is not significantly correlated with their speech-communication behaviors in other types of situations. This finding has been theoretically described in "A Behavioral Taxonomy of Dyads," and the way in which it was discovered will be discussed subsequently.

Selection of a General Methodology for Modifying Speech-Communication Behaviors

Although reliability and validity were critical for determining whether or not and when behavioral changes occur, the problem area of greatest concern was the selection of a general strategy for inducing change. Some characteristics of that general strategy were obvious. Modern psychological learning theory principles which the developers had found to be so successful in modifying speech-communication behaviors in other situations[10] would certainly be employed. These were:

Table II

Correlations Among Various Groups
in Rating 2-Minute Audio Samples
of Interviews (Crane study)

PRF - professors in education, English, child development and speech path.
BUS - corporation personnel mgrs.
ADM - public school administrators
TCH - high school speech teachers
CRI - criterion of sum of ratings by 3 speech-communication faculty members

Groups Correlated	eta	r
PRF-CRI	.70	.70
BUS-CRI	.74	.74
ADM-CRI	.63	.63
TCH-CRI	.81*	(.59)
PRF-BUS	.99*	(.93)
PRF-ADM	.94*	(.82)
PRF-TCH	.95*	(.82)
BUS-ADM	.83	.83
BUS-TCH	.81	.81
ADM-TCH	.96*	(.90)

*Eta was used as a measure of relationship wherever the distribution of points was significantly curvilinear.

(1) a structuring of the environment to elicit large quantities of behaviors of the type needing to be reinforced and isolated enough for the learner's search behavior to be non-random in terms of which variable he attempts to modify;

(2) reinforcement with mere notification of success with "um HM" and success-not-yet with "HM um" rather than with explanations, since explanations not only delay learning by reducing the time available for the learner to behave but tend to provoke a degree of cognitive awareness that is not a requisite of behavioral change[11] and that could decrease the likelihood of change.

However, two basic and highly interrelated issues had to be resolved before any general methodology utilizing these two practices could be selected. One was the question of whether the focus would be on interference (ability to discriminate acceptable from unacceptable phenomena) or on facilitation (ability to perform without an ability to account for it accurately). Another was the question of the extent to which competence (ability to state how to perform) was a prerequisite for criterion performance and, if was not a prerequisite, to what extent was competence desired before, during or after the acquisition of criterion performance.

A vast amount of literature defines any problem of language acquisition or language change in terms of (1) the target language's characteristics, (2) differences between the target population's language characteristics and the target language's characteristics, and (3) development of a training program to enable the target population to know which of its langauge characteristics are not those of the target language, and to learn how to produce those characteristics of the target language.[12]

This conventional approach of necessity would induce some cognitive awareness in the learner that his habitual language is less than adequate. Any adverse judgment of a human's ability to interact with others tends to elicit avoidance behaviors rather than modification behaviors. Hence, new language behaviors tend to be acquired, if at all, at a level of proficiency that signals non-habituality to others.

It seemed to us, therefore, that the desired behavioral changes would have to be effected with minimal cognitive awareness that change should occur, was occurring or had occurred. An unpublished study by Anami and Munekata[13] on the Center System in 1969 showed that, for students who had already reached or exceeded behavioral criteria and for those still in training, this goal was achieved. And this is in spite of the fact that nearly all trainees and former trainees concurred with their evaluations by admitting their need for training.

From this decision to seek performance without competence, several policies naturally follow:

(1) No criterion can be defined in terms of the characteristics of behaviors; all must be defined in terms of consequents of behavior;

(2) No reinforcement of any behavior can reveal any information about the behavior being reinforced other than that it was or was not at criterion;

(3) No learner at any time is to be given any explanation of how he says anything or how he should say anything.

It was decided that the environment would be structured to elicit behaviors of the type that needed to be reinforced by presenting each learner with tasks requiring him to engage in speech-communication under

carefully programmed conditions for those tasks to be completed, and that the tasks would be of such a nature that only by satisfactory national speech-communication behavior could the assigned tasks be completed. We had observed in previous uses of this strategy that a task assignment is viewed by learners as requiring time for completion, and lack of completion at any given time is interpreted by each learner as indicative of the task's difficulty rather than as indicative of the learner's own inadequacy, so long as the learner perceives that he will eventually complete the assigned task.

The signals of success and success-not-yet should be interpreted, then, as signals of routes not to follow in piloting through the maze towards task completion rather than as signals of personal inadequacy or failures, or the precise nature of the error. The fact is that, in more than 2,000 persons who have completed training, not one person has ever expressed resentment to training supervisors, or was observed to express resentment, or was reported to have expressed resentment about receiving such a signal, and most learners at some stage of training, usually very early, receive at least 5 and as many as 22 such negative signals in a row.

Selection of the Reinforcer

The decision of who should render these evaluations of learner performance was the most difficult one to make. Some alternative to individual therapy by professors was necessitated by the fact that, if any sizeable number of trainees were to have their behaviors monitored, there were simply not enough professional man-hours available and, even if they were obtainable, there was little likelihood that professionals

would long tolerate an assignment so devoid of intellectual challenge. There was a conviction that we could structure the tasks such that, if desired, the learners themselves could perform in the roles of subordinate and superordinate, but there was also the conviction that not all important national speech-communication occurs within that dyadic framework. Peer communications do occur and are important, but we were not convinced that we could enable professors to interact with students as their peers even if successful completion of the tasks required it. And, since we were engaged in modifying speech-communication rather than language, the use of a computer as a dyadic partner for each learner was both costly and excessively unreal. Moreover, computers are very poor at pattern recognition compared with any human. One example of this is the vast and disappointing research in mere spoken digit recognition.[14] The solution, then, was some sort of peer, in training or not in training, to participate with each trainee on the communication tasks.

The use of majors in speech-communication as a cheap labor source was one alternative. It was decided, however, to use other trainees rather than, for example, undergraduate majors in speech-communication, both to avoid any tendency to introduce an <u>eavesdropper effect</u> and to enable each learner to give as well as to receive error signals. The eavesdropper effect is the evaluation of a source's communication by soneone other than the source's intended receiver. The fact that, for example, critics earn their livelihood by doing this, or that we find nothing silly in our society about English teachers teaching students how they should react to a piece of literature which was never intended by its author to be read by that teacher or those students, or that

public speaking teachers grade students' speeches that are addressed, ostentensibly, to their fellow-students, merely indicates that the practice is socially acceptable rather than that it is personally accepted. It is not unusual to find language professionals who disapprove of persons conversing with local speech-communication behaviors they share in common. In an earlier day the reason given for such reproof was that their speech was vulgar; today the reason given is the belief that "practice makes perfect" and speaking a dialect recidivistically reduces one's ability to speak the Standard tongue. Even if one were ignorant of the psychological research refuting the principle of learning by repetition, or if one insisted that language is a set of cognitions that can be forgotten rather than a set of behaviors that merely lose tonicity through disuse, one could well ask, if either practice or interference principles operate, why is it that a person who speaks five languages is more likely to learn to speak another with less effort and more effectively than one who has learned only one language other than his native one.

To avoid any tendency for a learner to assume that his local speech-communication was being disapproved rather than that it was merely inappropriate for the tasks he would perform, it was decided to exclude the population of potential disapprovers rather than to trust our training of them not to manifest an eavesdropper effect. It was decided, therefore, that evealuations of learners' performance would be rendered by persons who were also learners in the system.

Relation of evaluation to training

Once evaluators' ratings had been accepted as the select-exempt criterion until a more valid or less costly procedure could be devised,

the most important question concerning the selection-exemption process was the extent to which it should be integrated with or separated from actual training. The decision was to maintain complete separation at all costs for three reasons: (1) the raters should under no circumstances be familiar enough with the goals of whatever training was provided that they tend to select those trainees who were most in need of achieving those goals: (2) the developers of the training programs should have no ability to influence ratings by tending to select, intentionally or unintentionally, those persons for training who might tend to benefit most by the types of training that had been and were devised; and (3) if the trainee is forced into a cognitive awareness of his personal inadequacy as a communicator, it is most likely to occur during the selection process, so that any perception by trainees of any propinquity between training and evaluation, even perception of some duplication of personnel, would tend to induce cognitive awareness of inadequacy during training.

Maintenance of independence between the training process and the selection-exemption process, therefore, would induce perception of an alliance between the training and the trainee such that the goal is for the trainee to strive to beat the evaluation system by learning in the system how to "program" raters to exempt him from further training.

This independence would be maintained by permitting no persons who were familiar with the training variables to serve as raters, and no persons who would serve as raters would be given information about the nature of training that we provided.

It was realized later, as the system became successful, that publications were necessary and that such secrecy could not continually be

maintained. For this reason as well as others, the search for a valid select-exempt criterion other than humans' ratings was intensified and, after three years, was eventually achieved.

Variable Identification and Modification

The identification of variables related to selection-exemption tended to occur in six stages, each of which resulted in a system being developed to modify learners' behaviors on those variables that were identified at each of the six stages. Hence, it is perhaps easiest to follow the development of identification of variables in terms of the six systems that were created. These six systems could be termed: (1) the Professor Tutored System for Pidgin Speakers, (2) the Professor Evaluated System for Effectiveness, (3) the Learner Tutored System for Effectiveness, and (4) the Learner Evaluated System for Intelligibility, and Diction, (5) the Learner Managed System for Intelligibility and Style, and (6) the Learner Managed System for Intelligibility, Style, and Strategy.

(1) The Professor Tutored System for Pidgin Speakers

Once the decision had been made that behavioral changes would be induced by learners completing speech-communication tasks with other learners, the two problems created by this decision were how the nature of each task would be determined and how each learner would be trained for each task so that his availability of strategies would always be great enough to prevent entirely his adopting habitual avoidance behaviors. And the solution of the latter problem necessitated our discovering those avoidance behaviors that would tend to be manifest when alternative strategies were exhausted.

It was decided that the tasks would be determined on the basis of the variables that were identified as needing to be modified. Hence, the provision of a repertoire of strategies had to be postponed until some variables had been discovered which could produce ratings that were significant shifts towards the criterion of exemption.

As mentioned in "A Refutable Taxonomy of Dyads," the first variables that were selected to be modified were those supplied by the raters as their justifications for the low ratings they provided. These were collected from comments the raters wrote voluntarily on the rating forms. Almost all of these comments concerned what the literature defines as Hawaiian pidgin or Island Dialect.[15] The most frequently cited characteristics were the "pidgin intonation" and certain sound substitutions, viz., "shtr" for "str," "d" for voiced "th," "t" for voiceless "th," and "n" for "ng."

Each of a group of professors[16] was trained to have a student who was selected for training converse with him in his office, but at any time the professor could say "Hm um," and the student would have to repeat what he had just said and would try to say it differently. The professor could say "HM um" any number of times to indicate "Go back" but, after "HM um" he would eventually say, "um HM" to mean "Go on" because the repetition was satisfactory. For the first group of 46, within six hours of such training, manifestations of pidgin characteristics were almost non-existent. After the professors gained experience and learned how to let the student do almost all of the talking and not let the student program him into lecturing, each learner among the last to be trained was trained in two hours or less. After much behavioral

shaping, each person appeared before a panel of three of these professors who had spent least time working with that learner, and he was interviewed in much the same way that the official Evaluation Board would interview him. Any member of this Practice EB could say "HM um" at any time, and the learner could be referred for further dyadic work, to another Practice EB or on to the official EB. None of the professors on any official EB was a professor who had been involved in training, except in an emergency when no other replacement could be found.

It was a beautiful system, and a total failure. About 9 in 10 (41 of 46) were reselected for training. The 1 in 10 who were exempted could be accounted for solely on the basis of rater unreliability. Recordings were made of the actual EB interviews, and it was obvious that either the learners had been teaching the professors who had trained them not to notice their pidgin, or that significant pidgin characteristics had not yet been identified, or that perception of pidgin characteristics was a consequent rather than an antecedent of low ratings. Hence, we played samples of the recordings to phonetically skilled members of the Department who were not participating in the training with the request to indicate all instances of so-called "pidgin characteristics." In the 46 samples, 7 such instances were duly noted, and 3 of these occurred in the 5 students who had been exempted. This left us with the indisputable realization that we had to modify speech-communication behaviors that are reliably detected but, whatever they are, experts are unable to specify accurately the variables to which they are reacting and do tend to agree strongly about the variables they specify.

In summary, then, the Professor Tutored System for Pidgin Speakers:

(1) involved learners selected for or exempted from training by external EB's;

(2) employed professors to render social reinforcement to learners who conversed with them;

(3) successfully modified learners' pidgin characteristics;

(4) produced no significant number of exemptions by EB's.

(2) The Professor Evaluated System for Effectiveness

Our next surmise proved to be as fortunate as the first was unfortunate; we assumed that our trainees had simply failed to "come on strong." We would treat their problem as one of ineffectiveness, and their ability to speak pidgin was an irrelevant symptom they possessed in common.

Research literature in speech-communication abounds with experiments identifying variables concerned with speaking effectiveness.[17] We began with the 7 variables of manner and bearing (directness or eye contact), loudness, voice quality, pitch variety, rate variety, articulation and diction (word usage and syntax).

The next decision was a crucial one. It was whether the variables affecting effectiveness would be worked on sequentially so that only one variable or one new variable had to be modified at any time for successful task completion or whether they would be worked on simultaneously in a speech-communication task in which all of these variables had to be highly varied to effect successful task completion. Because there were so many variables involved, it was decided that the shaping of so many behaviors at once would demand more sustained vigilance than our learners

would tend to provide. Hence, we decided to work on each variable separately. That is, the task would be to produce a criterion extent of variability on one variable or one new variable while engaging in national speech-communication. The information content had to be technical so as to make the use of local speech-communication unlikely and so that the great variability would be learned as a characteristic of national speech-communication. The task, therefore, would be for them to read to or converse with a professor in his office. The professor would announce which variable they were working on, and he would say "HM um" if he wanted repretition with more variety on that particular variable. Criterion on any variable would be 5 consecutive minutes in which no "Hm um" was said.

No order in which each variable was to be worked on had been specified. The professors soon reported that they noticed spontaneous modification in the desired direction on certain variables while others were being worked on. They were then asked to tally which variables were modified when each was being worked on.

The results were that every other variable tended to be modified when manner and bearing improved, that greater loudness tended to produce better voice quality, that a better voice quality tended to produce more pitch variety, and that more pitch variety tended to produce more variety in rate, but the reverse of these relationships was not observed. Consequently, a hierarchy was established and, as anticipated, hours of training dramatically decreased. No experiments were run because the number of professors involved (5-8) was too low to make comparisons, especially if other, obviously important factors were controlled. These

other factors were increased skill in letting the learners do nearly all of the talking, in saying "HM um" faster when a manifestation requiring it occurred, and in withholding "um HM" until a trial with criterion performance occurred rather than saying "um HM" merely to indicate that a change in the direction of criterion has occurred. The tendency of the novice reinforcer is to approve improvement. The skilled reinforcer learns that for humans this tends to stabilize change at the level of performance that was positively reinforced, so that negative reinforcement must subsequently be provided for behavior that previously had been positively reinforced. This confuses the learner, delays learning, and most importantly it was found that learners could take an amazing number of negative reinforcements in a row and that the increased tension induced by repetitious negative reinforcement tended to increase the likelihood that the behavior that is finally reinforced positively will be learned by one-trial learning.[18]

Data recorded by each professor during the shaping process were variable being worked on, number of sentences uttered, nature of each reinforcement provided, and type of avoidance behavior, if any, that was observed.

Analysis of these data revealed that no professor contributed to the training of significantly more of those exempted, but that those who were selected for further training did tend to have been trained by only one or two professors whereas those exempted tended to have been trained by more than two professors. The procedure was therefore adopted for all subsequent training that every learner would schedule himself with at least two professors, and not with the same professor on two consecutive occasions.

Many types of avoidance behaviors had been considered and placed with code letters on the data sheets. These were: learner asks what he did wrong, silence of considerable duration, learner tries to begin a new sentence rather than to say again, and perseveration, (repetition with no indication of change). It was found that, of all of these avoidance behaviors, the pattern followed by practically all learners was perseveration an inordinate number of times (it almost seemed as if it was a contest whether the professor would finally relent and say "um HM" before the learner would relent and make some modification in his manner of saying what he had to repeat verbatim), and this was usually followed by silence of unusual duration followed by such a great change in the direction of criterion that, if it was not at criterion, the reinforcer was tempted to say "um HM." This dramatic change after perseveration if the change is not a criterion, usually results in the trained reinforcer pausing before saying, "HM um." This pause doubtlessly signals the learner that his success-not-yet is success-almost, because performance at criterion almost invariably occurs shortly afterward. Perseveration was considered to be almost the only avoidance behavior that occurred, it occurred in almost every learner, and the amount of perseveration tended to be greater with learners who professed their eagerness and need to learn. The tendency on subsequent variables was not for this pattern to disappear but for the "contest" to be resolved by the learner's changing with fewer negative reinforcements in a row.

As each of these learners reached criterion on the last variable, he appeared before a Practice EB consisting of 2 professors on the S-CC staff who had worked with him least often. They were rated on their

interviews and, if both ratings were at the exempt level (4 or higher), they were scheduled for an official EB. If either professor rated 3 or less, he specified the variable on which, in his opinion, further work was needed. If ratings were low but it was thought to be due to some variables other than those on which learners were being trained, he was scheduled for another Practice EB with 2 professors in which at any time the learner could be negatively reinforced. The reduction from 3 to 2 professors on Practice EB's was an attempt to encourage the staff to utilize their reduced work hours with needed S-CC research.

The results obtained by the Effectiveness System were almost the reverse of the previous Pidgin Speakers fiasco. Four to 7 of each group of 6 to 10 who appeared before EB's were exempted from further training. And they appeared in groups of 10-15 that were composed 30-50 percent of persons who had not been trained but were being considered for training by a recommendation procedure operating at that time. This involved all freshmen and transfer undergraduate students being screened by a member of the Departmental faculty and being issued a satisfactory "clearance" or being referred to an EB.

In summary, then, the Professor Evaluated System for Effectiveness:

(1) involved learners selected for or exempted from training by external EB's;

(2) employed professors to render social reinforcement as learners conversing with them worked to extend their variability on each effectiveness variable;

(3) employed professors on Practice EB's to render social reinforcement to learners who had reached criterion on all effectiveness variables;

(4) exempted 6-7 of every 10 learners who had been selected;

(5) was unable to exempt the remaining learners even after considerable recycling.

(3) The Learner Tutored System for Effectiveness

Success was by no means yet universal, but we had indisputably identified some of the variables controlling selection-exemption. Programming pidgin characteristics out of their communication behaviors in interviews with professors had not altered the EB ratings. Programming greater variety into their vocal characteristics had altered those ratings. It could be argued that modification of pidgin characteristics is perceived as learning what behaviors to avoid--a kind of negative learning--but learning more variety is positive learning. This would assume that the professors reinforcing the learners tended to tolerate any intonational patterns and pronunciations so long as they were not representative of pidgin characteristics, or that learners sensed that such a rule was operating. But this theory breaks down in practice. Learners obviously were being positively reinforced for producing Standard English intonations and pronunciations. The difference in the two methods could easily be interpreted not as negative versus positive but as a difference in positive degree. For example, on the variable of pitch variety the difference was such that, in training for the intonations of Standard English, any extent of pitch variety was acceptable so long as it delineated the acceptable tune. In training for pitch variety the criterion was not a decision about whether or not the sentence had a Standard English tune; the criterion was whether or not the extent of variety in pitch was sufficiently great to cause that person to be

perceived by others as an effective speaker. In training for the pronunciations of Standard English the emphasis tended to be on whether or not pronunciations of certain words were acceptable. In training for articulation the emphasis tended to be on whether every word was easily intelligible the first time it was heard.

The decision, therefore, was to pursue the road towards increased effectiveness. And, if we had learned anything, it was that ineffectiveness was characterized by not having other ways, and it didn't matter what particular way was being manifest. Effectiveness was characterized by an ability to communicate from a repertoire of alternatives. The search had shifted: We were no longer looking for what our population did or could do; we were looking for what they could not do.

The search narrowed even more as a result of the vast and collateral research effort directed toward developing a valid measuring instrument to predict and therefore replace EB ratings. In the summer of 1966, 55 tests that had been developed through 1965-66 were administered as a 160 minute battery to 168 students in the required core course in speech-communication. The results were analyzed in the fall of 1966. Although these tests yielded no single satisfactory predictor of the criterion, the best combination of predictors included only tests in which the time for responding to each item was controlled by the audio tape. On those tests in which the time for the entire test was controlled, but the response time per item was under the control of the testee, either with or without the use of audio tape, relations with the criterion were negligible. Hence, the additional piece of information we had obtained in searching for variables was that the variables being sought would involve what our population could not do in real-time and yet probably could do

if a greater amount of time is provided than in generally provided in speech-communication.

About this time, March, 1967, the facilities of the S-CC were completed and could be occupied. In anticipation of this event, programs had been written to train learners to perform as partners who would reinforce each other under the supervision of a professor. In essence they were trained to perform a role that had previously been filled by professors. These programs referred to these roles of learners as "Student" and "Tutor," and badges were provided which students would wear as they performed each role. Professors were "promoted" into a new role, and wore badges labelled, "Manager." Managers recorded the same data as before, such as variable worked on, number of sentences uttered, the nature of each reinforcement provided and the type of avoidance behavior, if any, that was observed. However, they were no longer the primary reinforcer. A Manager could "Override" the reinforcement which the Tutor provided but, as these programs were refined to train learners to discriminate below-criterion from criterion behavior on each variable, this overriding tended to occur only to prod the Tutor into withholding positive reinforcement for below-criterion-but-improved behavior. The Manager announced which variable they were to work on, and criterion performance on that variable was a five minute period in which neither the Tutor nor the Manger said, "HM um." These programs to train learners to perform in the two roles involved learners listening to lectures while they completed response forms. Program completion required 5-8 hours.

As these learners exited after from 12-20 hours of work in the two roles, they appeared before the Practice EB of 2 professors who used the

same referral procedure as previously: schedule further work on a variable, schedule further work in a reinforcing Practice EB, or schedule for an official EB. About 6 of every 10 of learners who were routed directly to an EB by the Practice EB were exempted on their first re-appearance before an EB, and about 2 of every 10 were exempted after the prescribed additional training. The remaining 2 of every 10 were routed to variables they had clearly already mastered and, when that effected no changes since they were already well above criterion, they were cruelly scheduled for another EB, and another, and another while we struggled to identify variables attributable to their reselection.

In summary, then, the Learner Tutored System for Effectiveness:

(1) involved learners selected for and exempted from training by external EB's;

(2) employed learners to render social reinforcement to other learners on each effectiveness variable separately, as the learner being reinforced reconsituted lectures from his lecture notes;

(3) employed professors to supervise and override the two-learner interactions;

(4) employed professors on Practice EB's to render social reinforcement to learners who had reached criterion on all effectiveness variables;

(5) exempted 6-7 of every 10 learners who had been selected;

(6) exempted every remaining learner after numerous recycling through Practice EB's.

(4) The Learner Evaluated System for Intelligibility and Diction

The professors who were members of the S-CC staff were urged to try to identify variables for this reselected sub-population during their Practice EB's.

Once, one of these learners was asked to rephrase something he had just said during one such Practice EB. At the request, "Would you say that same thing some other way?" the response was an anxiety-inducing delay of 15 seconds followed by the remonstration that he could not say it any other way. The same request was made to the next four learners, all of whom were above criterion on the 7 training variables but were selected by EB's for further training. All four of them also could not perform the task in less than 20 seconds and one of them, when rephrasing was requested, after an extermely long delay produced the exact same sentence again. When this was pointed out to him, he was as incredulous as were the professors. Clearly we had identified a variable or cluster of variables upon which to focus training for these continually reselected learners.

We termed 6 of the first 7 variables intelligibility variables, and decided to create a new speech-communication task to include the variable of diction. The first programs that had been written to enable learners to perform in the two roles were lengthy, confusing in numerous places, and boring. The confusion was produced by our making changes in the rules of performance and then not changing every relevant portion of the programs that trained learners for performance. Since a diction program had to be written and expanded and, since the intelligibility program needed revision to exclude diction and to indicate the existence of the new program and relations between the two, it was decided that a major revision would be prepared.

The technique was adopted of numbering each section in terms of what it referred to. The learners would be taught the terms, Learner's

Handbook (the response forms used with the audio tapes), Competence Programs (those involving the tapes and Learners' Hanbooks), Performance Programs (those in which several learners work together on speech-communication tasks), Intelligibility Programs, Diction Programs, the roles of Student and Tutor were now called Speaker and Listener, and the third role of Evaluator was invented to replace professors with learners on Practice EB's.

The decision to replace professors with learners on Practice EB's was made for several reasons. With hundreds of persons in training, each required a Practice EB of about 5 minutes of 2 professors' time, and each person who had been reselected by an EB required from 10-30 minutes before a reinforcing Practice EB, and the S-CC staff could not fill these needs and also provide professors to work with learners as Managers. Moreover, use of learners on Practice EB's would give more time to those of us who would revise programs so that adequate revisions could be prepared. And, most importantly, it was believed that one good way for learners to learn how to "program" professors to exempt one from training would be for them to serve in the EB professors' role in much the same way that patients of a therapist learn those behaviors expected of them in a role-playing situations.[19]

Since we did not know all of the variables involved in the expanded factor of diction, it was decided to adopt the approach opposite to that used in the intelligibility program and to develop a task in which all diction variables would be worked on simultaneously. About all we know about the diction variables is that they included the ability to ask questions, to answer questions, and to perform such operations as

summarization, elaboration and substitution. We decided that, if the variables were more clearly identified as we calssified the problems encountered, we could always write a diction program that involved modifying each variable as a separate speech-communication task just as had been done in the Intelligibility Performance Program.

The new programs in sequence were Oreintation, Intelligibility Competence, Intelligibility Performance, Terminal Competence and Terminal Performance. In the latter program, each learner in the role of Speaker appeared before two other learners in the role of Evaluators. The Speaker was to develop a topic for at least 2 minutes during which time either Evaluator could signal him with "HM um" to say whatever he had just said in some other way,and a 2 minute timer would be reset. After that, each Evaluator asked the Speaker questions for 2 minutes, during which either Evaluator could ask any question. If any question was worded so as to produce lack of confidence in the Speaker, either Evaluator could say "HM um" and reset the timer. Several negative reinforcements could be rendered in a row. Criterion behavior was 2 minutes of talking and 2 minutes of questioning by each evaluator in which no "HM um" was said. Learners who reached criterion went directly to an official EB, manned as always by 3 professors, none of whom was a member of the S-CC staff.

These new programs were published in 1968,[20] and learners began to exit from the system. It was found that the same exemption rate was being maintained, about 6-7 of every 10, but that for the first time a means had been found to exempt all reselected learners. They were simply recycled through the Practice EB's staffed by professors who could now

devote more time to each learner because the learners, in effect, had taken over most of the former work done in Practice EB's by their working on diction in their Terminal Performance Program. Not only was more time available for each learner to perform before 2 professors but, since they no longer had to work on learners' diction, they could now work on any variable they suspected was producing low ratings on EB's for any learner. It was no more costly in terms of staff time than the previous system, and now all learners who had been selected were being exempted.

In summary, then, the Learner Evaluated System for Intelligibility and Diction:

(1) involved learners selected for and exempted from training by external EB's;

(2) employed learners to render social reinforcement to other learners on each intelligibility variable separately, as the learner being reinforced reconstituted lectures from his lecture notes;

(3) employed professors to supervise and override the two-learner interactions;

(4) employed learners to render social reinforcement to other learners on the task, Terminal Performance, a form of Practice EB in which the learner as Speaker worked on all variables simultaneously;

(5) exempted 6-7 of every 10 learners who had been selected;

(6) exempted every remaining learner after numerous recyclings through Practice EB's.

(5) The Learner Managed System for Intelligibility, Style and Strategy

Although the new system worked, it was extremely costly in terms of

staff time and, for that reason as well as others, the situation in terms of professors assigned to the S-CC was becoming intolerable. A person was hired with the understanding that he would be in charge of macrosystems (flow of learners and staff through the system) as Dr. Harms was in charge of microsystems (moment-by-moment learning and contingencies affecting it), but the situation was perhaps beyond amelioration so long as the professors performed only menial tasks. The professors were not challenged by sitting silently and gathering data on students who practically never talked to them. And repeated efforts to interest them in research had proved to be almost totally unsuccessful. If they were researchers, they had their own research interests, and the S-CC was not one of them. Moreover, every effort to engage them in program writing met with failure because program writing by committee resulted in unnecessary verbosity, redundancy and, even worse, in contradictions that did not appear to be contradictory when read but were confusing to the learners. Practice EB's were a mere formal preview of the EB and no professor worked with any reselected learner more than once. Hence no professor could derive any personal joy over having "his" student exempted.

The trend, therefore, was obvious; we were going to have to replace professors assigned to the S-CC with learners in the last duty left for these professors to perform, the role of Evaluator in the Intelligibility Performance Program.

However, the change could easily be viewed as of at least as much benefit to the learners as to the professors. Learners were exiting with fewer performance hours in communicating with their peers than had

been required in their communicating with professors. The tendency may have been for them to engage in national rather than in local speech-communication because the professor was observing, but we had noticed numerous instances of their conversing with local speech-communication behaviors even in front of the professor just as soon as the session ended and the task no longer was the reconstitution of lectures from lecture notes. Another reason that made us seek the new role for the learners was that we had observed a quantum change in the performance of each learner between his first performance as Student and his second performance, since the second performance meant that he had performed as Tutor in the meantime. Either we had to assume that performance as Tutor added a dimension to the learning or that somehow learning occurred as they "mulled over" their first performance before reporting for their second performance. It was difficult to give credence to the notion that behaviors are modified by rumination; it was far more likely that vicarious learning had occurred.[21] By extension, then, the role of a learner who observed dyads while gathering data about the process might prove to be an additional opportunity for vicarious learning, not only involving learning better how to perform as Speaker and as Listener but how national speech-communication functions from an extra-systemic point of view.

In observing the operation of the two programs, Intelligibility Performance and Terminal Performance, we had made several important discoveries. The Intelligibility Performance Program could break down easily if the learner in the role of Speaker seemed to imply to learners in the roles of Listener and Evaluator that he dared them to say, "HM um"

to him. The two learners in the reinforcing roles had no incentive in that case to give success-not-yet signals since their progress towards exemption was not being delayed by that learner's attitude; it was his 15 minutes to use or misuse, and there was no incentive for them to try to stop his misuse of it. This caused some learners to be reselected for that variable on which tolerance of sub-criterion performance had occurred, and it was deemed to be an unsatisfactory situation to allow such an attitude to be conveyed.

It was discovered that, if the Listener had to repeat verbatim what the Speaker had just said with exactly the same modulation on that variable the Speaker was working towards criterion on, the Listener would be reluctant to repeat what the Evaluator would not accept as identical. The Listener's frame of reference would be, in effect, that it is better to say "HM um" to someone else than to have "HM um" said to you. Moreover, the Evaluator's task became much easier in that he no longer had to evaluate on numerous criteria; it was either same-or-different, and he could pay more attention to his recording of data.

The minor problem was that the terms Speaker and Listener were no longer applicable since the Listener was saying as much as the Speaker. We termed the two new roles: Communicator A and Communicator B.

The major problem was how to insure when B was to repeat, so that he was faced with a task of relatively fixed difficulty. Obviously, A could not reconstitute lectures from his lecture notes since the lengths of sentences varied drastically. The solution was to define a Basic Sentence. A Basic Sentence was defined as consisting of three or more technical words (and these had to be defined) and a total of 10 words plus or minus 2.

Communicator A would prepare a Technical Word List before he participated in his first Intelligibility Performance Program. When he served in the role of A, he would look down at his list, selected 3 words, and compose a Basic Sentence. B would then say "HM um" to indicate that he did not think he could repeat the Basic Sentence, or "HM um, words" to indicate that it was not a 6-10 word sentence, or "Hm um, technical words" to indicate that the sentence did not contain at least 3 words that were technical to him, or he had to repeat the Basic Sentence. The Evaluator then compared the two in terms of their having exactly the same words and exactly the same modulation on the variable being worked on and all previously worked on variables. As Evaluator he could also say "HM um, words" or "HM um, technical words," or he could say "HM um" to mean the sentences produced were different in either words or variable manipulation, or he would record one success.

Since the communication of A was no longer a lecture interrupted with "Hm um," there was no reason to retain the 5-minute-without-"HM um" criterion established for each of the intelligibility variables. This had been an unsatisfactory criterion in that some of the learners tended to pause for 10-15 seconds occasionally, and they were actually producing fewer opportunities for "HM um" than were other learners. The decision, therefore, was to change the criterion to number of Basic Sentences produced in a row without any kind of "HM um" being said. The longer they paused, the more they would be robbing themselves of the opportunity for progress toward exemption.

These modifications of the Intelligibility Performance Program went through several revisions until it was demonstrated that learners

not only employed national speech-communication but were being exempted. And revisions were made until Evaluators could record data reliably. As predicted, the learning time required in the Intelligibility Competence Programs was reduced, and the time required to reach criterion on any intelligibility variable of 10-in-a-row was less than that required for the previous intelligibility criterion of 5 minutes without "HM um."

In observing the operation of the Terminal Performance Program, we decided that the critical operation being required of learners was to ask and answer questions rapidly and clearly. The Terminal Performance variables were all related to the predictability of the question. The variables that were identified and their relative difficulty from easiest to most difficult were questions requiring confirmation or negation, questions requiring restatement in more or fewer words, questions requiring restatement in more abstract or more specific words, and questions that were any one of these as selected as most appropriate by the questioner (Communicator B).

It was decided, therefore, to revise the Terminal Performance Program by having learners work on each of these variables separately, by continuing the intelligibility roles of A, B and Evaluator, by continuing the production by A of Basic Sentences, and by terming the variables: confirmation, negation, elaboration, condensation, summarization, specification, and prediction, and by terming the new programs Style Competence and Style Performance.

These modifications resulted from several revisions until, finally, learners could produce questions readily in the role of B and answer them appropriately and quickly in the role of A, and an appropriate

criterion level was found at which learners would be expemted with least performance time. The criterion that finally evolved was 10 question-answer fits without a "Hm um" from B or the Evaluator.

As these major revision began to exempt learners, it was found that more learners, about 8 of every 10, were being exempted on their first appearance before an EB after completing the two programs, that this proportion was not reduced by shunting learners into an EB without a Practice EB, and that the learners who were being reselected could not be exempted with recycling through either the Intelligibility or the Style Performance Programs. The reduced staff now spent almost its entire time with the 20 percent of reselected learners, in a search for variables characteristic of the new population. These sessions were called Practice EB's but, because of the reduced staff size, consisted of only one professor on the S-CC staff.

In summary, then, the Learner Managed System for Intelligibility and Style:

(1) involved learners selected for or exempted from training by external EB's;

(2) employed learners to render social reinforcement, under the supervision of another learner, to other learners who produced Basic Sentences while working:

(a) on a separate speech-communication task for each intelligibility variable;

(b) on a separate speech-communication task for each style variable;

(3) exempted 8 of every 10 learners who had been selected;

(4) exempted almost none of the reselected learners after recycling each through a variable on which sub-criterion performance seemed to have been achieved;

(5) exempted all recycled learners after considerable social reinforcement was provided by one professor on a Practice EB.

As before, once the population of reselected learners had been isolated from all other learners in a situation requiring them to communicate with professors, the abnormal but common characteristics of those learners were able to be divined simply by posing various tasks and seeing what responses tended generally to occur. In the case of learners with well above criterion intelligibility and style, the search, as before, was for some rigidity or lack of felxibility in some type or types of real-time speech-communication.

Since we could not think of any variables that occurred <u>within</u> speech-communication situations to try them on, we decided to begin with confronting them with various kinds of speech-communication situations. We gave them line drawings in which, in one situation, they were to tutor and be tutored and, in another, to interview and be interviewed. The outcomes were that each learner could function effectively in one particular role but ineffectively in nearly all others, and that there was not a particular role in which more of them excelled. It was as if each learner had a style of communicating that he had learned, and he tried to make that style work in situations for which it was quite inappropriate. The next thing was to check how well learners who had not been reselected could perform in these roles upon completing the style programs. The result was that all of them could perform better than our reselected learners.

We then began a major effort to identify the variables of various speech-communication tasks. After much deliberation and trial and error with these reselected learners, types of speech-communication situations and the variables involved began clearly to emerge (cf. "A Refutable Taxonomy of Dyads").

The situations we identified as involving manipulation of the same variables differently were tutorials, interviews and interchanges, and the variables were termed entropy (how each type of contract was proposed by the seeker of the dyad), harmony (how each type of proposed contract was finally negotiated by the respondent) and stability (how the resulting contract was fulfilled).

A Competence Program was written in which verbal information was distributed to the two learners. These tasks proved so difficult for these learners to perform that a search was begun for a way of simplifying them. The decision was to make the information as simple as possible, mere binary information. We therefore provided them with zeros and ones, with the tutorial task being for A to enable B to locate all errors on B's list within 1 minute, with the interview tasks being for A to interview B to discover all numbers missing from A's list within one minute, and with the interchange task being for both A and B to combine their partial lists to discover a pattern to their sequence of numbers within one minute.[22]

It was found that, again, these reselected learners took a great amount of time to learn to perform these different types of tasks, but they took much less time with binary information than they had required with verbal information and, when they went on to verbal information

after numerical information, they performed verbal information tasks faster than did learners who had not been reselected but had completed both the Intelligibility and Style Performance Programs.

All that remained, then, was to write and refine what was termed the Strategy Competence Program, and then to find out if reselected learners could exit after reaching criteria on the Style Performance Program. The criterion was completion of one cycle of each task in less than one minute on any type of task which involved information that had not been worked on previously.[23] The learner roles for A, B and Evaluator were continued, but Basic Sentences were now replaced with information distributed by the Evaluator who also recorded data and reset the timer for each cycle. And for the first time we had found a rationale for deciding whether each variable should be worked on separately or all variables worked on simultaneously within a speech-communication task other than our own ignorance about variables or difficulty of variable identification due to number of variables. We would have them work on all variables simultaneously since the variables had to be manipulated differently to perform each task within the one-minute criterion.

The reselected learners worked through the new Strategy Performance Program and appeared again before an EB. Almost all of them were exempted.

The next test was whether the other learners would benefit from taking the Strategy Performance Program. All learners were then required to complete the Strategy Performance Program before they appeared before an EB. The result was that every learner tended to exit with higher ratings. Where the exempt criterion was a 3-rater sum of 11 or more, and the average learner had previously exempted with a sum of 13-15, now only

1-5 of every 100 learners was being reselected and their exemption sums were almost invariably 17-21.

The 1-5 percent of all learners that were being reselected were now clearly of one particular type. It was easy to watch them perform before an EB and see what their problem was. They entered the room awkwardly, or they kept their backs to the professors, or they failed to look at the professors until the questioning had begun, or they sat down with poor posture, or they otherwise gave signals non-verbally but clearly that they were to be selected for training before they ever spoke a word. Accordingly, they were coached with social reinforcement on how to approach speech-communication situations, and then they appeared before an EB. The shift in ratings was phenomenal, from a selected sum of 9-10 they were exempted with a sum of 17-21.

The only major job that remained for the S-CC staff was to refine the programs to make them as short and as clear as possible, and to publish the results. But one more goal was yet to be achieved.

Although the S-CC professional staff either returned to regular faculty assignments or worked on program revision, the regular faculty were still serving on EB's, and this at a time when the members of the S-CC staff were neither serving on EB's nor performing menial and routine chores. Since the Strategy Performance tasks had so clearly differentiated selectees from exemptees, it was decided to structure a test composed of such tasks involving verbal information using minimal pairs such as day and they, with testees seated in two rows facing each other. After each round one row shifted so that each testee completed each task with 3-4 different testees. These tasks were then scored in terms of how many

different types of tasks a testee could perform at the average college student's level.

When the first and unrefined version of this test was administered to 47 students who also appeared before EB's, it predicted their summed ratings with a correlation of .91. Several later versions of this instrument are in the process of being tested for validity. Although it is too early to determine clearly, the results seems to be that the instrument selects almost all students who would be selected by EB's and, in addition, selects nearly all foreign students, persons with hearing losses who can read professors' lips without being detected, and persons who can really "come on strong" in certain situations such as the voluble intellectual who can tutor and interview but who cannot be tutored, be interviewed or share in interchanges as well as even the average college student.

It was decided by the external committee that controlled the selection-exemption process, the Speech-Communication Proficiency Committee, that in these cases perhaps we could assume that the instrument was a more valid predictor of students' behaviors than a group of three professors in an interview. Accordingly, the refined test[24] was adopted for the spring semester of 1969-70 as the instrument for selection for training. Since about 97 percent of all learners completing training could be exempted, it was further decided not to have them appear before EB's nor to repeat the test.

In summary, then, the Learner Managed System for Intelligibility, Style and Strategy:

(1) involved learners selected for or exempted from training by a validated dyadic proficiency examination:

(2) employed learners to render social reinforcement to other learners under the supervision of another learner:

(a) on a separate speech-communication task for each intelligibility variable;

(b) on a separate speech-communication task for each style variable;

(c) on a set of speech-communication tasks in which variables must have different values to produce criterion performance on each type of task;

(3) exempted 95-99 percent of all learners who had been selected:

(4) exempted all reselected learners after social reinforcement was provided by a professional on non-verbal behaviors producing lack of confidence prior to speech.

A flow chart of the entire system is shown in Figure 1, and a highly abbreviated flow chart of how this system evolved is shown in Figure 2.

FOOTNOTES

[1] See Appendix, "Measurement of speech-communication proficiency" Also cf. Joe M. Ball, "An experimental study of the relationship between the ability to impart information orally and the primary mental abilities, verbal comprehension and general reasoning," Speech Monog., 19 (1952), 112; John Black, "A relationship between speaking and listening," Joint Project Memorandum Report No. NM 001104500.54 (Pensacola, Fla. U. S. Naval School of Aviation Medicine, June, 1955); Barbara Lieb Brilhart, "The relationship between some aspects of communicative speaking and communicative listening," Jour. Communication, 15 (1965), 3-46; James I. Brown, "A comparison of listening and reading ability," Coll. English, 10 (1948), 105-107; Clyde W. Dow, "Intelligence, "Quarterly Jour. Speech, 27 (1941), 110-115; Clyde W. Dow and Stephen R. Papp, "The relation of reading ability and language ability to speaking ability," Speech Monog., 10 (1943), 107-108; Franklin S. Haiman, "An experiment in informative speaking," Quarterly Jour. Speech, 34 (1948), 354-360; Vergil H. Hughes, "Study of the relationships among selected language abilities," Jour. Educ. Res., 47 (1953), 97-106; Lester L. McCrery, "An experimental study of relationships between writing and speaking performance as measured by college grades and student rating scales," Jour. Communication, 1 (1951), 40-44; Ethel F. Mussen, "A study of the relationship between measures of speech reception and measures of proficiency in language," Ph. D. diss., Ohio State (1954); Nat'l Conference on Research in English, "Interrelationships among the language arts," Nat'l Council of Teachers of English, (Champaign, Ill., 1954); Joel Stark, "An investigation of the relationship of the vocal and communicative aspects of speech competency with listening comprehension," Ph. D. diss., New York Univ. (1956); Louis H. Swain, "Does public speaking train written usage?" Quarterly Jour. Speech, 36 (1950), 220-225.

[2] Paul Heinberg, "Chained dyadic systems to modify speech-communication behaviors," ERIC Linguistics Doc. No. AL 000994; L. S. Harms, "Social dialect and speech communication proficiency, " Actes du X^{e} Congrès International des Linguistes, Éditions de L'Académie de la République Socialiste de Roumanie (Bucharest, 1969); Paul Heinberg, L. S. Harms and June K. Yamada, Speech-Communication Learning System, Vols. I and II, ERIC Linguistics Doc. Nos. Ed 020523 and 020524.

[3] Amelia Uyehara, "Is there a difference between ratings of kamaaina and malihini Caucasian EB members?"

[4] Rosemary Hoshino, "Significant relationships between evaluation board and students."

[5] Ruby Len, "The effect of rater environment on ratings."

[6]Charles T. Marshall, "Current quantitative research in speech proficiency: the fatigue factor." All of the above are unpublished undergraduate student projects.

[7]Nancy Crane, "Do People Agree on What is Good English?" unpubl. graduate research study.

[8]Robert L. Ebel, "Estimation of the reliability of ratings," Psychometrika, 16 (1951), 407-424.

[9]J. P. Guilford, Psychometric Methods, 2nd ed. (McGraw-Hill, 1954), 373-410.

[10]E.g., Paul Heinberg, "Automated systems for improving oral delivery," Northwestern Bell Telephone Report (1965); L. S. Harms, unpub. program on parliamentary procedure.

[11]J. K. Adams, "Laboratory studies of behavior without awareness," Psychol. Bull., (1957), 383-405.

[12]Cf., for example Patricia Heffernan-Cabrera, A Handbook for Teachers of English to Non-English Speaking Adults (ERIC Clearinghouse for Linguistics, 1969). The only clear challenge to this conventional approach, which he calls the linguistics approach, which could be found was expressed by Francis C. Johnson in a paper read at the Third Annaul Congress of the Linguistic Society of Papua and New Guinea, "The failure of the discipline of linguistics in language teaching." The only experiment in language acquisition that could be found that clearly violated this conventional approach was done by Curran, Cf. Charles A. Curran, "Counseling skills adapted to the learning of foreign languages," Bull. of the Menninger Clinic, 25 (1961), 78-93.

[13]Susan Anami and Lois Munekata, "A comparative study of attitudes on the effectiveness of the S-CC between students in Speech 304 and students that have completed the speech communication programs." In response to the question, "Do you feel the S-CC training has improved your speech habits?" 14% strongly disagree, 50% disagree, 14% were undecided; 23% agreed and none strongly agreed.

[14]For example, cf. "Whither Speech Recognition," J. R. Pierce, Journal of the Acoustical Society of America, 46 (October 1969), 1049-50.

[15]For example, cf. Dale P. Crowley and O. H. Peterson, "Language learning goals defined by divergencies of Hawaiian island dialect from standard English," Hilo Language Development Program, June 1966; Gerald M. Meredith, "Personality correlates of Pidgin English usage among Japanese-American college women," Jap. Psychol. Res., 6(1964), 173-180; Elizabeth P. Carr, "The fiftieth state: New dimensions for studies in speech," Speech Teacher, 10 (1961), 283-290; Andrew W. Lind, "Communication: A problem of island youth," Social Process in Hawaii, 24 (1960), 44-45, Bernhard L. Hormann, "Hawaii's linguistic situation," Social Process in Hawaii, 24 (1960), 16.

[16]Persons other than the author who contributed their time, energy and skill to this endeavor at this time included Mr. Morton Gordon, Dr. L. S. Harms, Wesley Hervy, Wayne Oxford, Griffith Richards and Sarah Sanderson, and Miss Maurine Phelps. This staff was assisted by Mrs. Nancy Hiu and Miss June K. Yamada.

[17]For a survey of such research, cf. Paul Heinberg, Voice Training, Ronald Press (New York, 1964).

[18]J. L. Gewirtz and D. M. Baer, "Deprivation and satiation of social reinforcers as drive conditions," Jour. Abnormal and Social Psychology, 57 (1958), 165-172.

[19]A. P. Goldstein, Therapist-patient Expectancies in Psychotherapy, New York (Pergamon, 1962).

[20]Speech-Communication Learning System, Vols. 1 and 2, op, cit.

[21]Frederick H. Kanfer, "Vicarious human reinforcements: A glimpse into the black box," Research in Behavior Modification, New York (Holt, 1965), 244-267.

[22]The 1-minute criterion resulted from an initial requirement of 2 minutes, followed by the discovery that an optimum rate of error detection and reporting in terms of the three numbers preceding each error was one per 15 sec., and the further discovery that the 2-minute task required almost the maximum amount of sustained concentration so that 30 minutes on such tasks (15 as A and 15 as B) were severely enervating.

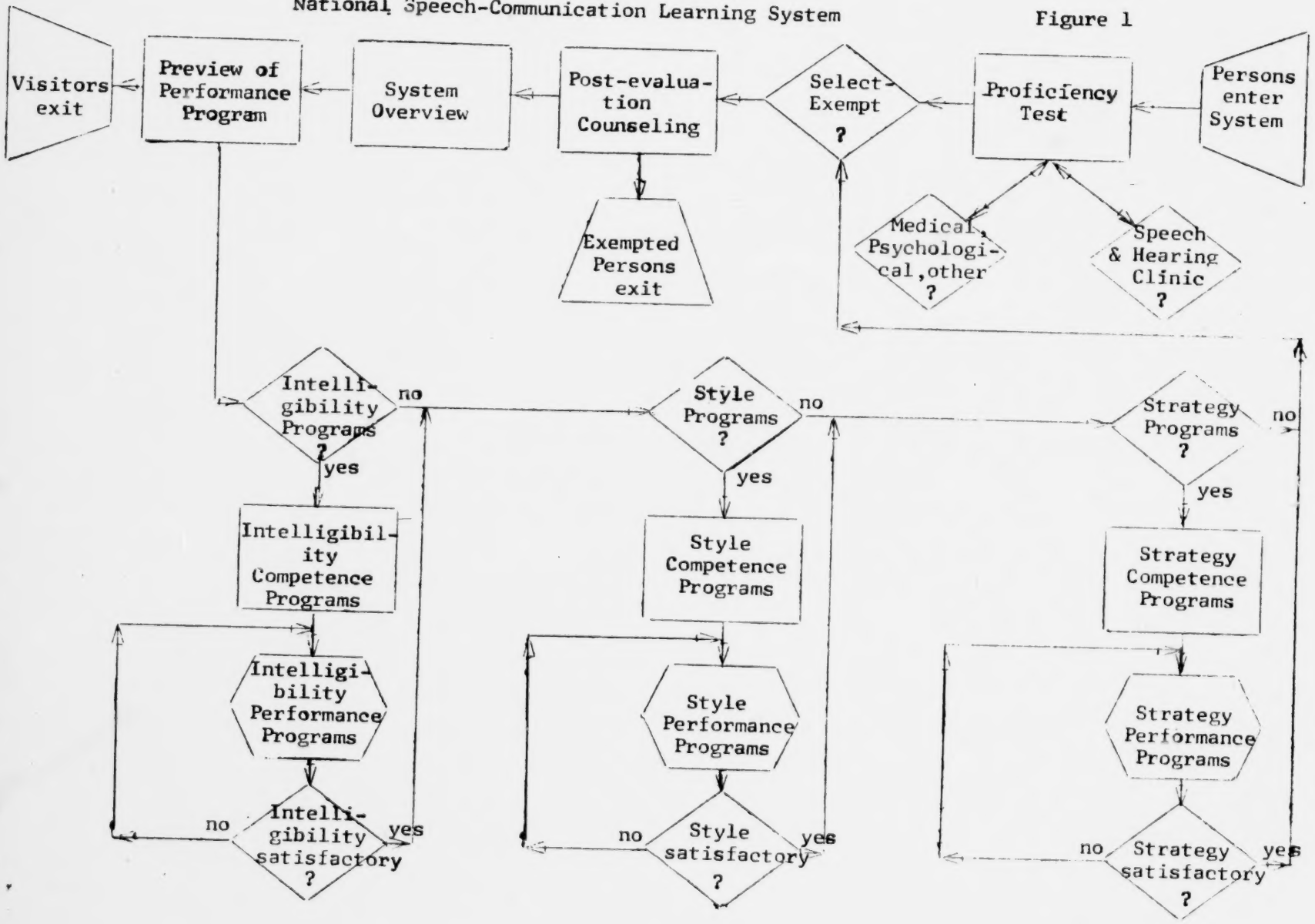
[23]A cycle is a single set of information distributed to A, B and the Evaluator. Any cycle on which criterion is not achieved is repeated until criterion on that cycle is achieved. Then a new cycle is begun of that same type, and this process is repeated until criterion is reached on a cycle the first time that cycle is worked on.

[24]Speech-Communication Proficiency Diagnostic Examination, copyright 1970 by Paul Heinberg, unpubl., available from the S-CC.

[25]Speech-Communication Learning System, 3rd Ed., Paul Heinberg, L. S. Harms and June Yamada, Honolulu (Internat'l Learning Systems, Ltd., 1970).

University of Hawaii
National Speech-Communication Learning System

Figure 1



Evolution of National
Speech-Communication Learning System

Figure 2